

What is claimed is:

- 1           1.       A system for providing secure exchange of sensitive information  
2       with an implantable medical device, comprising:  
3           a crypto key uniquely associated with an implantable medical device to  
4       encrypt sensitive information during a data exchange session; and  
5           an external source to securely obtain the crypto key over a secure  
6       connection from a secure key repository securely maintaining the crypto key, to  
7       encrypt the sensitive information using the crypto key and to store the sensitive  
8       information as encrypted data onto the implantable medical device.
- 1           2.       A system according to Claim 1, further comprising:  
2           a short range interface to logically define a secured area around the  
3       implantable medical device within which to securely obtain the crypto key; and  
4           a long range interface to logically define a non-secured area extending  
5       beyond the secured area within which to exchange the encrypted data.
- 1           3.       A system according to Claim 1, wherein the encrypted data is  
2       retrieved from the implantable medical device over a non-secure connection and  
3       the encrypted data is decrypted as the sensitive data using the crypto key.
- 1           4.       A system according to Claim 3, wherein the crypto key is securely  
2       retrieved over a secure connection from the secure key repository prior to  
3       decrypting the encrypted data.
- 1           5.       A system according to Claim 3, wherein the encrypted data is  
2       retrieved through long range telemetry.
- 1           6.       A system according to Claim 5, wherein the long range telemetry  
2       comprises radio frequency telemetry.
- 1           7.       A system according to Claim 1, wherein at least part of the  
2       sensitive information is securely stored as unencrypted data onto the implantable  
3       medical device over a secure connection.

1           8.       A system according to Claim 7, wherein the unencrypted data is  
2       securely retrieved from the implantable medical device over a secure connection.

1           9.       A system according to Claim 1, wherein the crypto key is securely  
2       retrieved from the secure key repository through a programmer.

1           10.      A system according to Claim 1, wherein the crypto key is  
2       maintained on the implantable medical device, and the crypto key is retrieved  
3       through short range telemetry.

1           11.      A system according to Claim 10, wherein the short range telemetry  
2       comprises inductive telemetry.

1           12.      A system according to Claim 1, wherein the external source  
2       comprises at least one of a programmer and a repeater.

1           13.      A system according to Claim 1, wherein the crypto key comprises  
2       an encryption key in accordance with the Advanced Encryption Standard.

1           14.      A method for providing secure exchange of sensitive information  
2       with an implantable medical device, comprising:  
3           defining a crypto key uniquely associated with an implantable medical  
4       device to encrypt sensitive information during a data exchange session;  
5           securely obtaining the crypto key over a secure connection from a secure  
6       key repository securely maintaining the crypto key; and  
7           encrypting the sensitive information using the crypto key and storing the  
8       sensitive information as encrypted data onto the implantable medical device.

1           15.      A method according to Claim 14, further comprising:  
2           logically defining a secured area around the implantable medical device  
3       within which to securely obtain the crypto key; and  
4           logically defining a non-secured area extending beyond the secured area  
5       within which to exchange the encrypted data.

1           16.      A method according to Claim 14, further comprising:

2           retrieving the encrypted data from the implantable medical device over a  
3 non-secure connection; and  
4           decrypting the encrypted data as the sensitive data using the crypto key.

1           17.    A method according to Claim 16, further comprising:  
2           securely retrieving the crypto key over a secure connection from the  
3 secure key repository prior to decrypting the encrypted data.

1           18.    A method according to Claim 16, further comprising:  
2           retrieving the encrypted data through long range telemetry.

1           19.    A method according to Claim 18, wherein the long range telemetry  
2 comprises radio frequency telemetry.

1           20.    A method according to Claim 14, further comprising:  
2           securely storing at least part of the sensitive information as unencrypted  
3 data onto the implantable medical device over a secure connection.

1           21.    A method according to Claim 20, further comprising:  
2           securely retrieving the unencrypted data from the implantable medical  
3 device over a secure connection.

1           22.    A method according to Claim 14, wherein the crypto key is  
2 securely retrieved from the secure key repository through a programmer.

1           23.    A method according to Claim 14, further comprising:  
2           maintaining the crypto key on the implantable medical device; and  
3           retrieving the crypto key through short range telemetry.

1           24.    A method according to Claim 23, wherein the short range  
2 telemetry comprises inductive telemetry.

1           25.    A method according to Claim 14, wherein the external source  
2 comprises at least one of a programmer and a repeater.

1           26.     A method according to Claim 14, wherein the crypto key  
2 comprises an encryption key in accordance with the Advanced Encryption  
3 Standard.

1           27.     An apparatus for securely transacting a data exchange session with  
2 an implantable medical device, comprising:  
3           means for defining a crypto key uniquely associated with an implantable  
4 medical device to encrypt sensitive information during a data exchange session;  
5           means for securely obtaining the crypto key over a secure connection from  
6 a secure key repository securely maintaining the crypto key; and  
7           means for encrypting the sensitive information using the crypto key and  
8 means for storing the sensitive information as encrypted data onto the implantable  
9 medical device.

1           28.     An implantable medical device for securely maintaining sensitive  
2 information, comprising:  
3           an implantable medical device, comprising:  
4                 a memory to store sensitive information encrypted using a crypto  
5 key uniquely associated with an implantable medical device; and  
6                 a secure interface to provide access to the stored sensitive  
7 information exclusively over a secure connection.

1           29.     A method for securely maintaining sensitive information on an  
2 implantable medical device, comprising:  
3           storing sensitive information encrypted using a crypto key uniquely  
4 associated with an implantable medical device; and  
5           providing access to the stored sensitive information exclusively over a  
6 secure connection.

1           30.     An apparatus for securely maintaining sensitive information on an  
2 implantable medical device, comprising:

- 3 means for storing sensitive information encrypted using a crypto key
- 4 uniquely associated with an implantable medical device; and
- 5 means for providing access to the stored sensitive information exclusively
- 6 over a secure connection.